

An architecture for inserting listener targeted advertisements into Internet retransmission of terrestrial radio broadcasts is provided. An Internet server provides aggregation of a plurality of radio broadcast programming for dissemination over the Internet to a plurality of listeners/users. Each Internet provided radio broadcast includes advertisements targeted for each individual listener/user based on a demographics profile. The demographics profile for each listener/user provides a basis for the targeted advertisements. A readily scaleable architecture is capable of supporting rapid growth in listeners/users. Scheduling data is used to predict and prestige advertising content. Timestamping of the radio broadcast aids in calculating where in the broadcast data sequence to pick up after an advertisement. Scalability is preferably achieved by a multiplexer in order to support large numbers of listener connections for streaming audio.